

## **REMARKS**

The applicant respectfully requests reconsideration in view of the following remarks.

Claims 11-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 11-26 are rejected under 35 U.S.C. 102(e) as anticipated by US 2003/0230167 (Loeffelholz). Claims 11-26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6,338,832 (Brown). The applicant respectfully traverses these rejections.

### **Rejections under 35 U.S.C. 112**

Claims 11-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant respectfully disagrees. The applicant has two independent claims (claims 11 and 16).

Claim 11 is directed to a process for the production of a valve metal oxide powder which comprises continuous reacting a fluoride-containing valve metal compound with a base in the presence of water at a temperature of at least 45°C and calcination of the resultant product, wherein the fluoride-containing valve metal compound is employed as an aqueous solution at **a concentration of 0.3 mol/l to 1.2 mol/l**, based on the amount of valve metal, wherein the base is an aqueous ammonia solution with **a concentration of 3 weight percent to 15 weight percent** and the reaction is carried out continuously,

wherein the volumetric flow ratios are adjusted such that the ratio of the volumetric flow rate of an aqueous solution of the fluoride-containing valve metal compound to the volumetric flow rate of the aqueous solution of the base is from 1:0.9 to 1:2, and

wherein the molar concentration ratio of fluoride-containing valve metal compound, calculated as valve metal, to base is adjusted to from 1: 5.6 to 1: 8.5 and the, reaction is performed in a single reaction vessel.

The process claim requires all the four underlined and highlighted features. The applicant respectfully disagrees that these are narrow limitations within the broad limitation as stated at the bottom of page 2 to the top of page 3 of the office action. These limitations are mutually independent of each other and all of these features must be met to read on claim 11. For the above reasons, this rejection should be withdrawn with respect to independent claim 11.

Claim 16 requires a spherical valve metal oxide powder with an average particle diameter  $D_{50}$ , determined by MasterSizer to ASTM B 822, of 10 to 80  $\mu\text{m}$ , characterized in that the BET surface area, determined by the  $N_2$  3-point method according to ASTM D 3663, is at least 10  $\text{m}^2/\text{g}$ . There are no narrow limitations within the broad limitation for claim 16. For the above reasons, this rejection should be withdrawn with respect to claim 16.

#### Rejections under 35 U.S.C. 102(e)

Claims 11-26 are rejected under 35 U.S.C. 102(e) as anticipated by Loeffelholz. Claims 11-26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brown.

As stated above, the applicant has two independent claims (claims 11 and 16).

Claim 11 requires

a process for the production of a valve metal oxide powder which comprises continuous reacting a fluoride-containing valve metal compound with a base in the presence of water at a temperature of at least 45°C and calcination of the resultant product, wherein the fluoride-containing valve metal compound is employed as an aqueous solution at

a concentration of 0.3 mol/l to 1.2 mol/l, based on the amount of valve metal,

wherein the base is an aqueous ammonia solution with a concentration of 3 weight percent to 15 weight percent and the reaction is carried out continuously,

wherein the volumetric flow ratios are adjusted such that the ratio of the volumetric flow rate of an aqueous solution of the fluoride-containing valve metal compound to the volumetric flow rate of the aqueous solution of the base is from 1:0.9 to 1:2, and

wherein the molar concentration ratio of fluoride-containing valve metal compound, calculated as valve metal, to base is adjusted to from 1:5.6 to 1:8.5 and the, reaction is performed in a single reaction vessel.  
(Emphasis added)

Loeffelholz merely discloses general information on how more or less spherical valve metal oxides can be obtained, but does neither specify the exact process parameters as claimed in the claims.

It was surprising and could not be anticipated by a person of ordinary skill in the art knowing Loeffelholz by which process parameters a valve metal oxide powder having a porous, sponge-like morphology having a spherical particle shape and a predetermined particle size can be obtained. Consequently, the present claims are novel over Loeffelholz.

Brown does not disclose the different parameters as claimed, and in particular does not disclose the different ratios of flow rates and the molar concentrations.

Brown is concerned with valve metal pentoxide powders that are not very porous and may consist of agglomerates of fine powders. Brown teaches how the particle size may be controlled in order to control the specific surface area.

In contrast thereto, the powders according to the present invention show very, high specific surfaces while at the same time having a large particle size, which is the result of the sponge-like morphology of the valve metal powder particles according to the invention, as can be seen e.g. in Figure 3. Brown merely teaches control of the powder particle size in order to control the specific surface area; but does not disclose a way on how to achieve the highly porous, sponge-like morphology of the powders according to the invention. Brown teaches away from the applicant's claimed invention.

It was surprising and could not be anticipated by a person of ordinary skill in the art knowing Brown, by which process parameters a valve metal oxide powder having a porous, sponge-like morphology having a spherical particle shape and a predetermined particle size can be obtained. Consequently, the present, amended claims are not only novel over Brown, but also the present invention is non-obvious over Brown.

The applicant does not believe that either Loeffelholz or Brown disclose nor teach all the claimed and features of independent claim 11.

Independent claim 16 requires,

a spherical valve metal oxide powder with an average particle diameter  $D_{50}$ , determined by MasterSizer to ASTM B 822, of 10 to 80  $\mu\text{m}$ , characterized in that the **BET surface area, determined by the N<sub>2</sub> 3-point method according to ASTM D 3663, is at least 10 m<sup>2</sup>/g** (Emphasis added)

The PCT counterpart of Brown (WO 97/13724) is cited in the applicant's published specification in paragraph no. [0012]. In paragraph no. [0012] of the applicant's specification, the applicant discusses that the maximum BET surface area obtained in the examples of Brown is only 6.7 m<sup>2</sup>/g (Example 6) (see Table 1 in Brown at columns 25 and 26). Therefore, Brown teaches away from the applicant's claimed minimum of BET surface area of at least 10 m<sup>2</sup>/g (see the applicant's independent claim 16). For the above reasons, Brown does not anticipate nor render claim 16 obvious. Therefore, this rejection should be withdrawn.

The German counterpart of Loeffelholz (DE103 07 716 A1) is cited in paragraph no. [0011] of the applicant's published specification. As stated in paragraph no. [0011], these oxides "exhibit low specific surface areas of 0.41 to 0.58 cm<sup>2</sup>/g". Therefore, Loeffelholz teaches away from the applicant's claimed minimum of at least 10 m<sup>2</sup>/g (see the applicant's independent claim 16). For this reason alone, Loeffelholz does not anticipate claim 16. For the above reasons, this rejection should be withdrawn.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

A one month extension of time has been paid. Applicant believes no additional fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13077-00124-US from which the undersigned is authorized to draw.

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Respectfully submitted,

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